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Examiners' Report

July 2016

Pearson Edexcel Functional Skills Mathematics Level 2 (FSM02)

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Introduction

This paper proved to be successful as a majority of learners engaged with all questions and there has been a small number of blank responses. This implies that learners were relatively well prepared to sit this Level 2 paper. What is also reassuring is that the more complex multi-step questions were attempted and most learners have shown resolve to carry out all the calculations through to a decision. This implies that learners have used a strategic approach to the timing of their responses to assure they could sensibly attempt all questions.

The majority of learners presented their working throughout each question but there were a few instances where the calculations were not clearly organised or simply missing. This led to some learners missing out on process marks. Learners should be encouraged to present all their calculations, however simple, and do so in an organised and logical order. There is some evidence that some learners are not using calculators. Centres should ensure that there is always access to a calculator during the exam and, when preparing learners for the test, encourage them to make use of a calculator. It is also critical that learners state their decision clearly (Yes or No usually suffice) as at least one mark in every question is awarded for correct conclusion accompanied by accurate figures. Accurate figures also require showing the units they are working with, i.e. cm, £, minutes etc.

Learners engaged with a variety of contexts and responded to tasks well in most cases. However, there were some instances where learners misinterpreted the results of their calculations and their final answer was incorrect. Learners should be encouraged to carefully consider the context, practise extracting essential information (highlighting key data is advisable) and focus on what the demand asks for when making their final decision. They should also develop a habit of showing the check of their calculations, especially when explicitly asked to do so. It is essential that learners use an alternative method, a reverse calculation or an estimate for the calculation, to provide a meaningful check of their working. Simply repeating of the working out already given will not gain the check mark.

Learners should particularly improve on a few areas. These include extracting correct data from tables and graphs, carefully considering the stem of the question and highlighting key information, converting between units, especially length and time units, using rounding appropriately – some learners unnecessarily do so in the intermediate stages of their process which leads to inaccurate final decision. The most striking error, however, was misunderstanding of scale presented as ratio (e.g. 1:50). The majority of learners assumed that one square (5mm by 5mm) on the grid represented 50 cm, rather than 1 cm represented 50 cm. It is strongly advised that centres teach scale drawings with scale presented as ratio and highlight the importance of measuring the grid in order to correctly apply the given scale.

Section A

Q1a)

While this question was very well done and the majority of learners showed the correct process to find the mean, they missed the fact that sales were in £ thousands and left their answer as £89.93 etc. Some learners lost marks as they found an incorrect total therefore centres should remind learners of the importance of checking their work. Some learners found the median instead of the mean. At Level 2 they should be taught to distinguish between the three averages. A considerable number of learners did not complete the check with some simply repeating their original calculation.

Q1b)

This probability question had mixed success. The vast majority of learners were able to find the 4 figures given in the question they were often confused about the next step. Some divided the answer by 4 and others divided the total by the number of customers in W12 and gave the answer as 3.5. Learners must be taught that probabilities never lie outside the range of 0 to 1. Some learners answered “unlikely” or “less likely” which is not a Level 2 response. Learners should make sure that probability could be in a form of fractions, percentages or decimals but not ratios. All these comments clearly imply that many learners failed to understand the concept of probability. This should be an area for centres to develop when preparing future learners for the exam.

Q2)

Learners did not perform very well in this question. While there were a few fully correct responses, most learners were only able to work out 85% of £139000 or find the total for 3 workers over 4 days. Therefore, they could only find one of the figures required for the comparison. Sadly, they did not know how to proceed from this point. Many worked out 85% of incorrect figure or added figures at random. Learners need to practice different types of multi-stage problems to give them a better preparation for the level 2 test, especially those that are set in unfamiliar context.

Q3)

This multistep question required finding an area of a compound shape and using a rule expressed in words to find the total cost. It has been refreshing to see plenty of fully correct responses to this complex task. There were, however, some errors repeatedly seen; the most notable was that learners worked out perimeter or partial perimeter rather than the area. This is rather worrying as at Level 2 learners are expected to know the conceptual difference between the two. Centres are advised to practise more task on finding an area of combined shapes with some missing lengths and in a variety of units of length.

Section B

Q4)
This was another complex multistep question, which the majority of learners responded to correctly and gained all marks. Most of them showed ability to work out the costs of two options and make the comparison. However, there were some commonly seen errors. Some learners failed to find the cost to hire the hall for 3 hours whilst others wanted to give 6 party bags to each of the 12 children for the “village hall” option. Some learners found the cost for 12 people for the “princess party” option instead of simply using the given cost for 15 children. Tutors can remind learners to use common sense to interpret this kind of questions. A number of learners did all the correct calculations but did not justify their final choice of party. Learners can use some words like “less” or “cheaper” to compare the values to give a valid reason.

Q5)
Many learners are able to find the correct answer and give the answer in correct money notation. However, some of them failed to work out 1/3 “off” but just gave the 1/3 of the total as the final answer. Some learners tried to find 10% and thus build up to 33% to work out the 1/3. However, they normally mixed up 30% with 1/3 when they applied the above-mentioned method. Learners should be aware of the simplest method to find a third or any simple fraction. Several learners added the delivery charge which was not applicable. This points out to some learners not reading the question carefully. Again, this question required an explicit check but many learners missed it completely or simply repeated the calculation.

Q6a)
This question tested ability to convert and work with time and it performed with mixed success. It was surprising to see learners attempting L2 paper still incorrectly converting simple time; for example, they equated 1.5 hours to 1 hour and 5 minutes or 1 hour and 50 minutes. Some learners found the total time in minutes correctly but were unable to convert this to hours and minutes. Mistakes were made when counting back to find a start time or when one of the given times was not included. It is highly recommended that the centres practise time conversion in practical context, putting emphasis on the fact that time can be shown in decimals and on strategies to convert it to hours and minutes. Learners can use timeline/table as visual aids to work out this kind of time-related questions. They should not use column addition to work out the total time as they likely will convert 15 minutes into 0.15 instead of the correct 0.25 hour.

Q6b)

This straightforward ratio question was mostly completed correctly. However, some mistakes were made due to premature rounding e.g. using 12 instead of 11.6… Learners should make sure that the rounding should be performed only when they work out the final answer but not during the work out. Other learners simply found the amount of sugar for 36 and 48 cakes without any further calculations. Some learners stated that 3.5 batches would be required but did not provide the total amount required.

Section C

Q7)

Very few learners obtained full marks for this question and there were many completely blank papers. It appears that many learners have little understanding of what a side view is and drew a rectangle rather than trapezium. However, the biggest issue was misunderstanding or not understanding the scale. While some learners were able to find one or two sides, correctly many drew the shape correctly but used an incorrect scale. Learners need to practise working with different scales written in different formats. Tutors should help learners to understand that scale is not always necessarily in the format like 1cm is 50cm. Many learners assumed that scale 1:50 meant that one square on the grid represented 50 cm, which was not the case in this question. If learners had used a ruler to find that one square was 5 mm wide they would have potentially been able to present correct answer. It is possible that learners did not have access to rulers and therefore assumed that one square was 1 cm. Lack of ability to convert between cm and mm may have also played a role in the poor performance on this question.

Q8)

Learners did quite poorly in this question. It appears that learners struggle with this type of very functional questions. They often employ area method, which is not appropriate for this type of question. They should be able to work with dimensions of the roof and finding how many solar panel can be placed against each length. Sadly, many learners forgot to include the 30cm gaps or took off just one gap when they should have taken two. Most learners were able to find at least one of the required areas but several learners failed to obtain full marks as they did not follow through to complete the question. Some learners attempted to answer this question by drawing 12 panels on a rectangle marked as 6.7m by 4.8m. This method would be appropriate if they also engaged with 30 cm gap and used consistent units. Learners can use drawing/sketching to help them to understand the questions first before they start to work out this kind of questions.

Q9)

This straightforward formula question tested BODMAS and extracting data to be able to substitute in the formula and majority of learners performed well scoring all marks. While majority of learners managed to substitute correct figures, some multiplied by the total of all 3 U values rather than the correct one. Most learners seem to be able to apply the formulae to work out the correct heat loss but some used 240 watts in the left hand side of the formulae. Only few learners did not use BODMAS in their calculation and worked out a wrong answer. Some learners found the correct answer but failed to make a decision and hence lost last mark.

Q10a)
This question tested extracting information from a complex table and performed very well. Only a handful of learners stated the incorrect answer and some left it blank. This might have happened as they ran out of time.

Q10b)
This question required a lot of attention from the learners as the arithmetic involved was rather complex. A large majority gained some marks on the question with quite a few fully correct responses seen. Some completed the correct calculations but failed to give decision. Some learners only found one of the amounts for comparison. It was surprising to see that many learners did not know to use 365 days and assumed there are 360 days in a year. Some did not do a check thus dropping the last mark. There were a significant number of blank scripts, possibly as it was the last question on the paper. Centres are advised to practise with learners using complex multiplication problems and using correct figures when converting time periods, e.g. year = 365 or 366 days, there are 52 weeks in a year etc.

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